

REMARKS

I. The Status of Claims.

Claims 1-32 were originally presented for examination before the United States Patent and Trademark Office (the "Office") with filing of a patent application on July 7, 2001. The first Office Action provides the following: objection to Claims 17 and 21 because of informalities; rejection of Claims 1, 3-7, 9, 10-12, 14 and 16 under 35 U.S.C. § 102(b) as being anticipated by Pinnock (WO 99/39169 A1); rejection of Claims 8, 13 17-19 and 22-32 under 35 U.S.C. §103(a) as being unpatentable over Pinnock in view of Burke, Jr (US 3,688,570). rejection of Claims 2 and 15 under 35 U.S.C. §103(a) as being unpatentable over Pinnock in view of Cui et al (US No. 6,115,111); and rejection of Claims 20 and 21 under 35 U.S.C. §103(a) as being unpatentable over Pinnock as modified by Burke, Jr further in view of Cui et al.

Applicant has cancelled claims 2, 15 and 20 and amended claims 1, 11, 17, 19 and 22. Claims 1, 3-14, and 16-19, and 21-32 remain pending in the present application. Applicant now respectfully requests reconsideration of his application.

II. Objection to Claims 17 and 21.

Claims 17 and 21 were objected to because of specific informalities identified by the Examiner. Claim 17 has been amended to include "detector" in the place of "detection mechanism" in order to provide a proper antecedent basis. Claim 21 has not been amended because claim 17 was amended to include a verticle cavity surface-emitting laser (VCSEL). Therefore claim 21 now has a property antecedent basis in claim 17 as amended.

Applicant believe claims 17 and 21 are now in proper form for examination and reconsideration by the Office.

III. Rejection of Claims 1, 3-7, 9, 10-12, 14 and 16 as being anticipated by Pinnock.

Claims 1, 3-7, 9, 10-12, 14 and 16 currently stand rejected by the Office under 35 U.S.C. §102(b) as being anticipated by Pinnock. Claims 1 and 11 have been amended to include language directed to a light source in the form of a "vertical cavity surface-emitting laser (VCSEL).

Pinnock does not teach a method for analyzing the performance of a system that includes a step of: directing light from at least one vertical cavity surface-emitting laser (VCSEL) to an encoded portion of a rotating member. Pinnock merely utilizes a lamp, which is not conducive for use in small-scaled environments or with as much lighting efficiency as a collimated laser such as a VCSEL. By not teaching laser use, Pinnock fails to teach each and every element of the invention as provided by Applicant in independent claims 1 and 11. Claims 3-10 and 12-16 depend on claims 1 and 11 respectively, therefore are also believed allowable. For these reasons, the rejection of claims 1, 3-7, 9, 10-12, 14 and 16 is now respectfully traversed.

IV. Rejection of Claims 8, 13 17-19 and 22-32 as being unpatentable over Pinnock in view of Burke Jr.

Claim 8, 13 17-19 and 22-32 currently stand rejected by the Office under 35 U.S.C. §103(a) as being unpatentable over Pinnock in view of Burke Jr. As indicated above, Claims 11 has been amended. Claim 17 has also been amended to include reference to a vertical cavity surface emitting laser (VCSEL) as the light source. Pinnock and Burke Jr combined still fail to teach an element of the invention as embodied in claims 11 and 177 as amended. Therefore, the rejection of claims 8, 13 17-19 and 22-32 is respectfully traversed.

With regard to claims 18-19 and 22-32, independent claim 17 provides a system that can detect the relative motion between two rotating members in a mechanical system utilizing laser light and the development of Moire fringes based on patterns located on movable elements of the system. Pinnock Burke teaches a system for detecting motion of two rotating members as well, but not a

system configured like and operation as Applicant's. Applicant provides a system that includes the use of VCSEL generated laser energy for generating light beams. The use of VCSELs as a source of "laser energy" is not hinted at or suggested by Pinnock and Burke et al. For these reasons, the rejection of claims 17-19 and 24-32 is respectfully traversed.

V. Rejection of Claims 2 and 15 as being unpatentable over Pinnock view of Cui et al.

Claim 2 and 15 currently stand rejected by the Office under 35 U.S.C. §103(a) as being unpatentable over Pinnock in view of Cui et al. Claims 2 and 15 have been cancelled. The rejection, however, was directed to Cui et al's use of VCSEL technology for a light source, which is now claimed in claims 1, 11 and 17.

Pinnock does not teach use of lasers. Furthermore, Pinnock does not teach the use of more than one light (see Fig. 4) for its measurements. One skilled in the art could not be motivated to combine the teaching of Pinnock, or Cui et al to arrive at Applicant's invention which was filed in July 2001. Cui was issued on June 4, 2002 and does not teach applicants invention. One skilled in the art could not combine Cui et al and Pinnock as suggested by Examiner to render Applicant's invention obvious prior to Applicant's filing date.

Vertical Cavity Surface Emitting Laser (VCSEL) technology is an important feature of Applicant's invention, as discussed throughout the specification and now provided as an element within independent claims 1, 11 and 17. Incorporation of VCSEL technology enhances the overall performance, signature and operation of Applicant's system. He is the first to incorporate VCSEL technology into mechanical systems to measure relative torque employing Moire fringes.

VI. Rejection of Claims 2, 14 and 15 as being unpatentable over Burke Jr in view of Cui et al.

Claim 2, 14 and 15 currently stand rejected by the Office under 35 U.S.C. §103(a) as being unpatentable over Burke Jr in view of Cui et al, which teaches the use of a VCSEL in association with a precise positioning system (position encoder).

Claims 2 and 15 have been cancelled, their contents being directed to VCSELs and now being provided as an element in their respective independent claims, 1 and 11. Claim 14 remains in its original form. Claim 14 depends on Claim 11 for which remarks have been provided, therefore the rejection of claim 14 is respectfully traversed.

VII. Rejection of Claims 2, 14 and 15 as being unpatentable over Burke Jar in view of Cui et al.

The rejection appears to be a duplicate of Paragraph VI, therefore the rejection with respect to claim 14 is respectfully traversed.

VIII. Rejection of Claims 20 and 21 as being unpatentable over Pinnock as modified by Burke et al, and further in view of Cui et al.

Claim 20 and 21 stand rejected by the Office under 35 U.S.C. §103(a) as being unpatentable over Pinnock as modified by Burke et al et al and further in view of Cui et al, which teaches the use of a VCSEL in association with a precise positioning system (position encoder). Claim 20 has been cancelled. Claim 21 depends on Claim 17 for which comments have already been provided above, and it rejection is traversed based on the argument provided with respect to Claim 17.

IX. Conclusion

Applicants have responded to each and every objection and rejection of the Official Action, and respectfully request that a timely Notice of Allowance be issued. Applicants respectfully submit that the foregoing discussion does not present new issues for consideration and that no new search is necessitated. Accordingly, Applicants respectfully request reconsideration and withdrawal of the objections and the rejections and request timely issuance of the present application.

A one-month extension fee is provided together with this amendment and response. November 8, 2003 having fallen on a Saturday, the present case is

considered timely with a one month extension if filed by Monday November 10, 2003.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned representative to conduct an interview in an effort to expedite prosecution in connection with the present application.

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